



PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of

Saburo KAMIYA

Group Art Unit. 2877

Application No.: 09/661,433

Examiner: S. Turner

Filed: September 13, 2000

Docket No.: 107312

For: EXPOSURE APPARATUS AND DEVICE PRODUCTION METHOD IN WHICH
POSITION OF REFERENCE PLATE PROVIDED ON SUBSTRATE STAGE IS
MEASURED (AS AMENDED)

**LARGE ENTITY REQUEST FOR
CONTINUED EXAMINATION UNDER 37 C.F.R. §1.114**

Director of the U.S. Patent and Trademark Office
Washington, D.C. 20231

Sir:

In accordance with the provisions of 37 C.F.R. §1.114, Applicant hereby requests continued examination and entry and consideration of the attached submission. The above-identified application was filed on or after June 8, 1995. Thus, entry is proper under 37 C.F.R. §1.114(d).

Attached hereto is our check no. 139641 in the amount of ☒ \$750.00 as payment of the fees set forth in 37 C.F.R. §1.17(e). The Director is hereby authorized to charge any additional fees or credit any overpayment associated with this communication to Deposit Account No. 15-0461. Two duplicate copies of this page are enclosed.

Respectfully submitted,

Mario A. Costantino
Registration No. 33,565

MAC/ccs

Date: March 3, 2003

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AUTHORIZATION**

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REQUEST FOR RECONSIDERATION FILED WITH RCE

Director of the U.S. Patent and Trademark Office
Washington, D.C. 20231

Sir:

In reply to the December 2, 2002 Final Rejection, and upon entry of the Request for Continued Examination (RCE) filed herewith, Applicant requests reconsideration of this application. Claims 1-6 and 9-28 are pending.

Applicant requests the Examiner to consider the references submitted with the Information Disclosure Statement filed herewith.

Claims 1-6 and 9-28 stand rejected under 35 U.S.C. §103(a) over WO99/28790 to Loopstra et al. in view of U.S. Patent No. 5,117,254 to Kawashima et al. This rejection is respectfully traversed.

The Office Action recognizes that Loopstra et al. does not include the claimed reference plate on the substrate stage, but asserts that it would have been obvious to modify Loopstra et al. in view of Kawashima et al., which show a separate reference plate 17, in order to result in the features recited in Applicant's claims. Applicant respectfully submits that the claimed combinations of features would not have been obvious to one having ordinary skill in the art in view of Loopstra et al. and Kawashima et al., and that even if Loopstra et al. is modified to have a separate reference plate, as proposed in the Office Action, the claimed combination of features would not result.

TECHNICAL STAFF

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Various ones of the independent claims of this application (claims 1, 6, 12 and 16) recite that, while the substrate stage is positioned at a predetermined position, measurements of a first sensor (or a position measuring system) and a second sensor (or a correction system) are carried out. The first sensor (or the position measuring system) measures positional information of a surface of the reference plate. The second sensor (or correction system) measures a distance between (or a change of distance between) the projection optical system and the substrate stage or a change of distance between the position measuring system and the substrate stage, or positional information in the optical axis direction of a reflector secured to the projection optical system. Neither Loopstra et al. nor Kawashima et al. teaches or suggests performing these two measurements while the substrate stage is located at a predetermined position.

As indicated in the Office Action, Loopstra et al. discloses a focus detector 40-46, which is described at page 13, lines 12-30. As also indicated in the Office Action, Loopstra et al. teaches measuring a distance in the Z direction between the projection system and the wafer stage. See, for example, page 19, line 25 - page 22, line 1. At page 19, lines 27-30, Loopstra et al. indicates that the Z measurement "may serve as a supplement to, or as a substitute for, the above-described Z measurement by means of the focus error detection system or the focus-and-level detection system." Loopstra et al. provides no further details on how this measurement can be used as "a supplement to" the focus error detection system. In any event, Loopstra et al. does not disclose or suggest measuring positional information of a surface of a reference plate or of the wafer (with the claimed first sensor or position measuring system) while the substrate stage is at a predetermined position at which the claimed second sensor (or correction system) measures the claimed distance.

Kawashima et al. does not overcome this deficiency in Loopstra et al. In particular, while Kawashima et al. discloses that a reference plate 17 can be provided (see, for example, col. 6, lines 12-18 and col. 6, line 56 - col. 7, line 28), Kawashima et al. does not disclose or suggest measuring a position of the surface of plate 17 when the stage is a predetermined position and also performing the measurement that is performed by the claimed second sensor (or correction

system) while at that predetermined position. Accordingly, the combination of Loopstra et al. and Kawashima et al. does not result in what is claimed in this application.

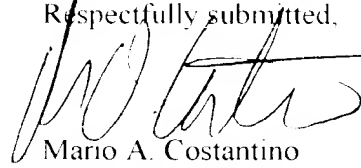
In particular, with respect to independent claim 1, the references do not disclose or suggest an arrangement in which, while the substrate stage is positioned at a predetermined position, (1) a first sensor measures positional information of a surface of the reference plate in an optical axis direction; and (2) a second sensor detects a distance between the projection optical system and the substrate stage. With respect to independent claim 6, the references do not disclose or suggest an arrangement in which, while the substrate stage is positioned at a predetermined position, (1) a position measuring system measures a position of a surface of the reference plate in the optical axis direction; and (2) a correction system measures a change of a distance between the projection optical system and the substrate stage. With respect to independent claim 12, the references do not disclose or suggest an arrangement in which, while the substrate stage is positioned at a predetermined position, (1) a position measuring system measures a position of a surface of the reference plate in the optical axis direction; and (2) a correction system measures a change of a distance between the position measuring system and the substrate stage. With respect to independent claim 16, the references do not disclose or suggest an arrangement in which, while the substrate stage is positioned at a predetermined position, (1) a first sensor system measures positional information in the optical axis direction of a surface of a reference plate provided on the substrate stage; and (2) a second sensor system detects positional information in the optical axis direction of a reflector secured to the projection optical system.

Accordingly, all pending claims of this application are patentable over Loopstra et al. and Kawashima et al.

In view of the foregoing, Applicant respectfully submits that this application is in condition for allowance. Favorable consideration and prompt allowance are earnestly solicited.

Should the Examiner believe anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact Applicant's undersigned attorney at the telephone number set forth below.

Respectfully submitted,



Mario A. Costantino
Registration No. 33,565

MAC/ccs

Enclosures:

Request for Continued Examination
Information Disclosure Statement

Date: March 3, 2003

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